

## **2.0.5 SITING REQUIREMENTS FOR WET ACID DEPOSITION MONITORING EQUIPMENT**

### **2.0.5.1 RURAL SITES**

A rural site is defined as a site located in a sparsely populated area and which will not fit the criteria of either an urban or a regional site.

1. The collector should be installed on its standard 3-foot high aluminum base over undisturbed land. Naturally vegetated, level areas are preferred, but grassed areas and slopes up to 15 percent are acceptable. Ground cover should surround the collector for a distance of 30 meters. Collectors installed upon platforms no higher than the anticipated snow pack are acceptable.
2. The rain gauge should be within 30 meters of the collector, but no closer than 5 meters. The rain gauge should be placed parallel to the collector in the direction of the prevailing wind.
3. Wet/dry collectors should be oriented parallel to the prevailing wind direction, with the wet bucket upwind of the dry bucket. If more than 20 percent of the precipitation is snow, the rain gauge must have an alter wind shield.
4. No object or structure shall project onto the collector or rain gauge with an angle greater than 45 degrees from the horizontal (30 degrees is optimal). The distance from the object to the sampler must be at least equal to twice the height of the object.
5. The collector should not be located under anemometer towers or overhead wires.
6. The horizontal distance between collocated collectors, or the collector and rain gauge, should be greater than 2 meters but no more than 15 meters. Objects over 1 meter high with sufficient mass to deflect winds should be greater then 5 meters from the collector.
7. The collector should be at least 100 meters from the open storage of agricultural products or fuels.
8. The collector should be at least 100 meters from mobile pollution sources.

9. Grazing animals or pasture should be no closer than 20 meters from the collector. Large concentrations of animals should be no closer than 500 meters from the collector.
10. Residential-type buildings within 30 meters of the collector should not be within the 30 degree cone of mean wind direction.
11. Industrial operations should not be within 10 kilometers of the collector. If the operations are in the general upwind direction, they should not be within 20 kilometers of the collector.
12. The collector should not be located within 10 kilometers of an urban or suburban area of 10,000 or more people.

#### 2.0.5.2 REGIONAL SITES

A regional site is defined as a site that is at least 5 kilometers from urban centers of more than 10,000 inhabitants and at least 10 kilometers from major industrial sources or urban centers of more than 75,000 inhabitants.

1. The collector should be installed on its standard 3-foot aluminum base over undisturbed land. Naturally vegetated, level areas are preferred. Ground cover (less than 0.6 meters high) should surround the collector for a distance of 10 meters. Within 30 meters, the ground slope should be less than 20 degrees, and hilltop sites, less than 30 degrees. Wooded sites should be at least 30 meters from the woodline. Collectors installed upon platforms no higher than the anticipated snow pack are acceptable.
2. The rain gauge should be within 30 meters of the collector, but no closer than 5 meters. The rain gauge should be placed parallel to the collector in the direction of the prevailing wind.
3. Wet/dry collectors should be oriented parallel to the prevailing wind direction, with the wet bucket upwind of the dry bucket. If more than 20 percent of the precipitation is snow, the rain gauge must have an alter wind shield.
4. No object or structure (overhead wires, trees, buildings, etc..) shall project onto the collector or rain gauge with an angle greater than 45 degrees from the horizontal (30 degrees is optimal). The distance from the object to the sampler must be at least equal to twice the height of the object.

5. The collector should not be located under anemometer towers or overhead wires.
6. The horizontal distance between collocated collectors, or the collector and rain gauge, should be greater than 5 meters but no more than 15 meters. Objects over 1 meter high with sufficient mass to deflect winds should be greater than 5 meters from the collector.
7. The collector should be at least 100 meters from open storage of agricultural products or fuels.
8. The collector should be at least 100 meters from mobile pollution sources. Parking lots with fewer than 10 vehicles and where traffic movement is limited to brief daily episodes can be within 75 meters of the site.
9. Grazing animals or pasture should be no closer than 20 meters from the collector. Large concentrations of animals should be no closer than 500 meters from the collector.
10. Residential-type buildings or solid structures should exceed the 30 degrees arc and the vertical elevation should not exceed 15 degrees.
11. Industrial operations should not be within 10 kilometers of the collector. If the operations are in the general upwind direction, they should not be within 20 kilometers of the collector.
12. The collector should not be located within 0.75 kilometers of a small community of 100-1,000 inhabitants; 1.0 kilometers of a small urban area of 1,000-10,000 inhabitants; 2.0 kilometers of oceans, interstate highways and railroad complexes; 10 kilometers of moderate urban area of 10,000-75,000 inhabitants; and 20 kilometers of large urban areas of more than 75,000 inhabitants.

#### 2.0.5.3 URBAN SITES

An urban site is defined as a site that is located closer than 5 kilometers to an urban center of 10,000 to 75,000 (or more) inhabitants, or closer than 10 kilometers to a major industrial source.

1. The collector should be installed on its standard 3-foot high aluminum base over undisturbed land. Naturally vegetated, level areas are preferred, but grassed areas and slopes up to 15 percent are acceptable. Ground cover should surround the collector for a distance of 30 meters. Collectors installed upon platforms no higher than the anticipated snow pack are acceptable. For collectors installed at rooftop sites, the following criteria apply:
  - a. Roof must be approximately the same height as those of surrounding buildings,
  - b. free of dusty materials,
  - c. building of one to three stories preferred,
  - d. collector should be located near the center of the building as far as possible from exhaust or inlet vents, and,
  - e. be cognizant of chimneys, exhausts, etc., on adjacent buildings. Also, the collector should not be located on the ground level along heavily traveled city streets. Surrounding vegetation, land features, and structures should be typical of region.
2. The rain gauge should be within 30 meters of the collector, but no closer than 5 meters. The rain gauge should be placed parallel to the collector in the direction of the prevailing wind.
3. Wet/dry collectors should be oriented parallel to the prevailing wind direction, with the wet bucket upwind of the dry bucket. If more than 20 percent of the precipitation is snow, the rain gauge must have an alter wind shield.
4. No object or structure (overhead wires, trees, buildings, etc.,) shall project onto the collector or rain gauge with an angle greater than 45 degrees from the horizontal (30 degrees is optimal). The distance from the object to the sampler must be at least equal to twice the height of the object.
5. The collector should not be located under anemometer towers or overhead wires.
6. The horizontal distance between collocated collectors, or the collector and rain gauge, should be greater than 5 meters but no more than 15 meters.

Objects over 1 meter high with sufficient mass to deflect winds should be greater than 5 meters from the collector.

7. The collector should be at least 100 meters from open storage of agricultural products or fuels.
8. The collector should be at least 50 meters from mobile pollution sources, except that parking lots with fewer than 10 vehicles and where traffic movement is limited to brief daily episodes can be within 30 meters of site.
9. Grazing animals or pasture should be no closer than 20 meters from the collector. Large concentrations of animals should be no closer than 500 meters from the collector.
10. Residential-type buildings or solid structures should not exceed the 30 degrees arc, and the vertical elevation should not exceed 15 degrees.
11. No major industrial source, coal or oil burning plant or foundry should be within 3.2 kilometers of site.
12. The collector should not be located within 1.0 kilometers of an interstate highway, major thoroughfare, airport or railroad complex, urban or suburban area of 10,000 or more people, nor should it be located within 2.0 kilometers of an ocean.

**NOTE:** Siting criteria stated above are taken in text from the National Acid Deposition Program (NADP).